THERMANN™

Solar Hot Water Systems

Owners Manual

March 2012

Thank You

Thank you for purchasing a Thermann solar hot water system.

Please store this manual somewhere accessible as it holds important information about your new Thermann solar hot water system.

In this manual you will find information on:

1. How Solar Heating Works
2. How Your Booster Works
3. System Maintenance and Precautions
4. Basic Troubleshooting Guide
5. After-sales Service

Customer Service

Customer service is important to us, your system installer should:

- Be on time
- Be polite
- Answer any questions you may have about the system
- Explain the basic operation of the system to you
- Clean up after the Installation
- Leave with you a completed installation/record form

If you have any comments about the service provided by the system installer please contact your local Reece branch.

1. How Solar Heating Works?

1.1 Introduction

Thermann strongly believe in informing the homeowner about the basic operation of the solar water heating system. By gaining a basic understanding you can develop realistic expectations about the operation of the system, develop habits which maximise energy savings and most importantly, ensure safe and reliable operation.

1.2 Summer and Winter Solar Heating

Solar radiation is only half or one third as strong in the winter months compared to summer, and therefore not able to provide the same amount of hot water as in summer. For optimal performance of your solar system it is recommended that the collectors be angled (pitched) at no less than 20degrees.

Note: for increased performance during winter it is recommended that collectors are pitched at latitude plus 10-20 degrees, Correct tilting of the system will provide increased year round performance and reduce energy costs further.

1.3 How Does the Thermann System Work

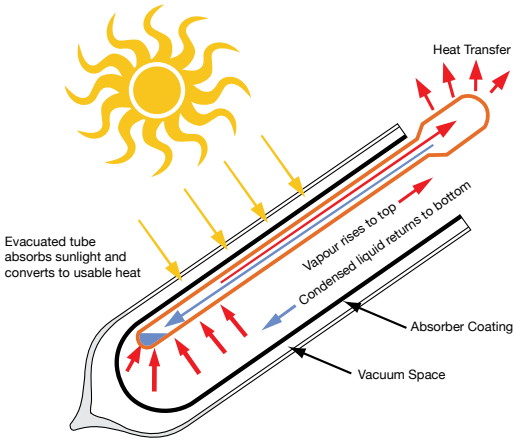
The Thermann solar collector converts the sun's energy into **HEAT**, quite different to photovoltaic (PV) solar panels, which convert the sun's energy into **ELECTRICITY**.

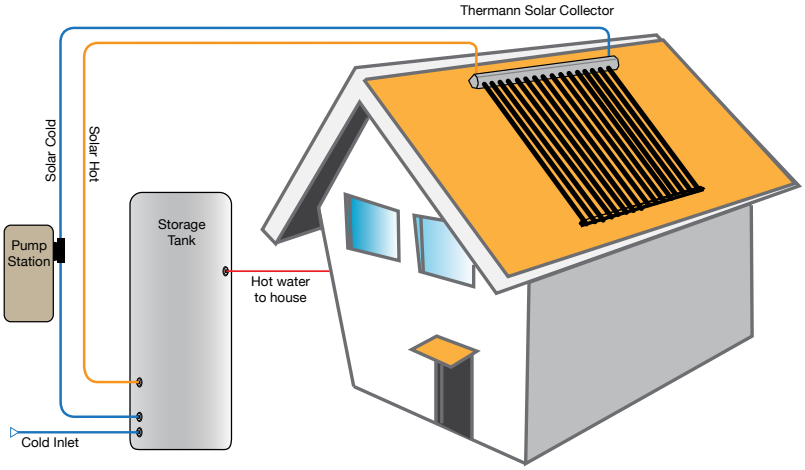
Step 1. *The evacuated tubes absorb the sun's energy and convert it to useable heat.*

Step 2. *The heat inside the evacuated tube, is carried via copper heat pipes to the insulated manifold, this contains a copper heat exchanger.*

Step 3. *An electronic controller measures the temperature of water in the manifold and compares it to the water in the bottom of the storage tank. If the manifold temperature is higher, the controller switches on a circulation pump which brings the solar heated water back down to the storage tank.*

Step 4. *Throughout the day, the controller switches the pump on and off to continuously heat water in the storage tank.*


Heat Transfer
Evacuated tube absorbs sunlight and converts to usable heat
Vapour rises to top
Condensed liquid returns to bottom
Absorber Coating
Vacuum Space



Note: Diagram not to scale - basic system overview not installation guide.

2. How Your Booster Works?

2.1 Boosting Explained

If the solar contribution during the day is not enough to raise the water to a suitable temperature, a booster can provide additional heating. During sufficient sunny weather, the solar collector will normally be able to provide enough hot water, but during winter months and overcast days boosting will be required.

2.2 Legionella Bacteria - The Importance of Boosting

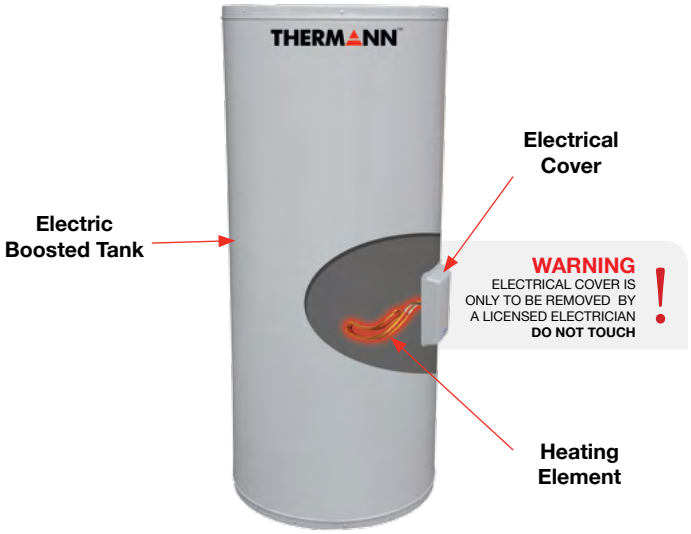
It is a legal requirement that water be heated on a regular basis to kill Legionella bacteria that can lead to Legionnaires disease. The frequency this temperature must be reached varies, and is explained below:

Type of Thermann System Installed	Minimum heat requirements
Bottom element electric boosted system	Once per week to 60°C
Mid element electric boosted system	Once per day to 60°C

2.3 Electric Boosted Systems

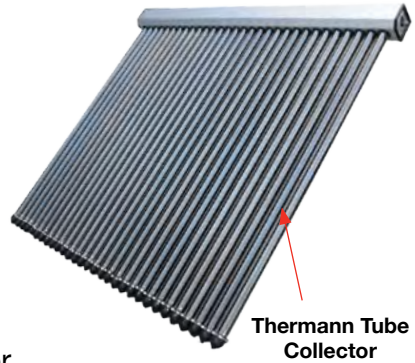
When the electric element is activated it will heat up all the water above the element to 60°C (or the thermostat setting). This heating can take as long as 3-4 hours if the tank is cold.

Note: Thermann recommends that the electric booster is left on, or controlled by a suitable timer.



3. System Maintenance & Precautions

3.1 System Maintenance



- **Cleaning** - The Thermann tubes do not usually need cleaning, regular rain and wind should keep the tubes clean.

- **Pressure & Temperature Relief Valve (PTRV) -** The PTRV is located near the top of your hot water storage tank. It is designed to release pressure in the tank as water expands and contracts during normal heating.
  The lever on the PTRV should be carefully lifted for a few seconds, and placed down **once every 6 months**. This will help prevent any debris or scale build up in the valve.

  CAUTION: WHEN PTR VALVE IS LIFTED HOT WATER WILL BE DISCHARGED. ENSURE THE DRAIN PIPE FROM PTR VALVE IS CLEAR.

- **Visual Check -** Thermann recommend periodic visual checks of your system:
  A. Check for leaks around the storage tank and pipework.
     WARNING: *Pipework can be extremely hot, do not touch any exposed copper piping.*
  B. Ensure water is not entering the pump station.
  C. If the tubes are safely visible from ground height, take a look at them and ensure all tubes are still dark in colour.
     (Note: If a tube is a milky/white colour the vaccuum has escaped and the tube will not be working as efficiently as it should be).

PTR Valve
THERMANN
WARNING
WHEN PTR VALVE IS LIFTED HOT WATER WILL BE DISCHARGED. ENSURE THE PTR DRAIN PIPE IS CLEAR PRIOR TO COMMENCING.
PTR Drain Pipe

3.2 Glass Lined Tank Precautions

Glass lined (Vitreous enamel) tanks are fitted with a Magnesium anode to provide corrosion protection for the tank from the stored water. Thermann recommend the anode be inspected at least every three (3) years, and serviced as required.

Small quantities of hydrogen gas can be released by the anode which generally remains dissolved in the water. This is then flushed away during normal use.

Depending on the water quality there may be a degree of hydrogen build up in the tank **if the water heater has not been used for two or more weeks.** To resolve the build-up of hydrogen within the tank "purge" the tank for approximately 30 seconds from the lever on the Pressure and Temperature Relief Valve (PTRV).

4. Basic Troubleshooting Guide

Problem	Cause	Solution
Pump Continuously Running	Air lock in manifold	Contact your local Reece branch
	Insufficient flow rate	Increase pump speed
Pump is not circulating even during sunny weather	Maximum temperature reached in the tank	This is normal operation, controller switches pump off once maximum temperature is reached to prevent over-heating.
	Possible sensor issue	Contact your local Reece branch
Why is the pump running at night?	Freeze protection operating	This is normal, but if the pump is running more than once an hour, additional insulation on the collector line should be installed.
	Possible faulty non-return valve	Contact your local Reece branch
Why is the controller L.E.D. flashing red?	Possible sensor issue	Contact your local Reece branch
Why is the water not hot enough?	Booster is not configured correctly	Electric booster should have the thermostat temperature set to at least 60°C. Booster must be left on off-peak, or controlled by timer.
	Household hot water usage too high	Contact your local Reece branch for advice. Remember an efficient shower head uses 9 litres/minute. *(10 minute shower = 90ltrs water)*
	Tempering valve installed	A tempering valve must be installed on every solar hot water system. Tempering valves will mix water down to 50°C
		Tempering valve may need replacing or servicing.

5. After Sales Service

5.1 Warranty/Service Call

If you have an issue with your Thermann solar hot water system please contact your nearest Reece branch for advice or to arrange a service.

Please fill this in for future reference:

Supplier Name:	
Supplier Address:	
Supplier Phone:	
Installation Date:	
Plumber (if different):	
System Type: (eg. 30 tube 315ltr Electric boosted)	

Thank you for choosing Thermann